(24)

$V_{H_2O} = 5\,l \Rightarrow m_{H_2O} = 5\,kg$

$Q = 1{,}68\,MJ = 1680000\,J$

$c_{H_2O} = 4200\ \frac{J}{kg\,K}$

$\Delta T = ?$

$Q = m_{H_2O} \cdot c_{H_2O} \cdot \Delta T$

$\Delta T = \frac{Q}{m_{H_2O} \cdot c_{H_2O}} = \frac{1680000\,J/kg\,K}{5\,kg \cdot 4200\,J} = 80\,K$

Odg.: Temperatura H_2O se je spremenila za $80\,K = 80°C$.

(25.) $m_{H_2O} = 2\,kg$

$T_{H_2O} = 10°C \Rightarrow \Delta T = 23\,K$

$T_K = 60°C = \Delta T = 33\,K\ 27\,K$

$T_K = 33°C$

$c_K = 390\ \frac{J}{kg\,K}$

$c_{H_2O} = 4200\ \frac{J}{kg\,K}$

$m_K = ?$

$Q_{H_2O} = Q_K \Rightarrow m_{H_2O} \cdot c_{H_2O} \cdot \Delta T_{H_2O} = m_K \cdot c_K \cdot \Delta T_K$

$m_K = \frac{m_{H_2O} \cdot c_{H_2O} \cdot \Delta T_{H_2O}}{c_K \cdot \Delta T_K} = \frac{2\,kg \cdot 4200\,J \cdot 23\,K\,kg\,K}{kg\,K \cdot 390\,J \cdot 27\,K} =$

$m_K = 18{,}34\,kg$

odg.: Masa kovine je 18,34 kg.

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(33) $Q_N = 4{,}368\,MJ = 4368000\,J$

$V_{H_2O} = 60\,l \Rightarrow 60\,kg$

$\Delta T = 20°C = 20\,K$

$Q = ?$

$Q_p = m_{H_2O} \cdot c_{H_2O} \cdot \Delta T$

$Q_p = 60\,kg \cdot 4200\ \frac{J}{kg \cdot K} \cdot 20\,K$

$Q_p = 5040000\,J$

$Q_p > Q_N \Rightarrow$ Odg.: Z razpoložljivo toploto ne moremo dogreti vode.

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(35) $V_{H_2O} = 14\,l = 14\,kg$

$T_z = 293\,K$

$T_k = 473\,K$

a) $T_z = 293\,K = 20°C$

b) $T_k = 473\,K = 200°C$

$\Delta T = T_k - T_z = 200°C - 20°C = 180°C = 180\,K$

c) $t = ?$ $660\,s \Rightarrow 11\,min$

č) $Q = ?$ $Q = m \cdot c \cdot \Delta T$

$Q = 14\,kg \cdot 4200\ \frac{J}{kg\,K} \cdot 180\,K$

$Q = 10584000\,J \doteq 10{,}6\,MJ$

a = ?

b = ?

c = ?

č = ?